

027

UNCLASSIFIED

TITLE--THERMODYNAMIC STUDY OF THE VAPORIZATION OF THALLIUM OXIDES USING A  
MASS SPECTROMETER -U-  
AUTHOR--(02)--RATKOVSKIY, I.A., SEMENOV, G.A.

PROCESSING DATE--04DEC70

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOLOG. 1970, 13(2),  
168-71.  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--MASS SPECTRUM, THALLIUM COMPOUND, METAL OXIDE, ENTROPY,  
ENTHALPY, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3003/1507

STEP NO--UR/0153/70/013/002/0168/0171

CIRC ACCESSION NO--AT0130436

UNCLASSIFIED

2/2 027

CIRC ACCESSION NO---AT0130436

UNCLASSIFIED

PROCESSING DATE---04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYSTEMS TL SUB2 O SUB3 PLUS TL, TL SUB2 O, TL SUB2 O SUB3, AND TL WERE STUDIED IN A KNUDSEN CELL WITH A RATIO OF EVAPN. SURFACE TO EFFUSION AREA EQUALS 250, AND MASS RATIOS WERE DETD. RELATIVE TO TL SUB2 O PRIMEPOSITIVE. AFTER STABILIZATION OF THE FORMATION OF O SUBW PRIMEPOSITIVE, EVAPN. MAY BE DESCRIBED BY TL SUB2 O SUB2 (S) YIELDS TL SUB2 O SUB3 NEGATIVE XDEGREES PLUS (X-2) (O SUB2) (G), AND TL SUB2 O(2) YIELDS (TL SUB2 O)(G). THERMODYNAMIC DATA FOR THE FORMATION OF THALLIUM OXIDE VAPOR FROM TL SUB2 O SUB3 PLUS TL, TL SUB2 O, AND TL SUB2 O SUBE ARE: L SUBT, 38 PLUS OR MINUS 1, 40 PLUS OR MINUS 2, 46 PLUS OR MINUS 1 KCAL-MOLE; DELTAH SUBT DEGREES, 38 PLUS OR MINUS 1, 40 PLUS OR MINUS 2, 50 PLUS OR MINUS 2 KCAL-MOLE; DELTA S SUBT, 32, 33, 45 ENTROPY UNITS; DELTA H SUB298 DEGREES 101, 44, 54; COEFFS. A AND B, IN EQUATION LOG P (TL SUB2 O)(G) EQUALS A PLUS B-T (MM HG): 10.573 AND 9091, 10.304 AND 8794, 10.220 AND 9776; FOR TL SUB2 O(G) MINUS DELTA H SUBG298 EQUALS 4, 2, 5 KCAL-MOLE; D SUB298 DEGREES (DISSOCN. ENERGY) EQUALS MINUS 143, MINUS 143, MINUS 144 KCAL-MOLE. FACILITY: LENINGRAD. GOS. UNIV.. IM. ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--INCREASE OF PRECISION AND PERFORMANCE OF MACHINES WITH PROGRAM  
CONTROL -U-  
AUTHOR-(03)-RATMIROV, V.A., CHURIN, I.N., SHMUTER, S.L.  
COUNTRY OF INFO--USSR  
SOURCE--INCREASE OF PRECISION AND PERFORMANCE OF MACHINES WITH PROGRAM  
CONTROL (POVSHENIYE TOCHNOSTI I PROIZVODITEL'NOSTI STANKOV S PROGRAMMYM  
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--AUTOMATIC CONTROL SYSTEM, PROGRAMMED AUTOMATIC CONTROL,  
MACHINE INDUSTRY/(U)SPID CONTROL SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/1725

STEP NO--UR/0000/70/000/000/0001/0342

CIRC ACCESSION NO--AM0130582

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AM0130582  
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. TABLE OF CONTENTS: PREFACE 3. CHAPTER I. CHARACTERISTICS OF MACHINES WITH PROGRAM CONTROL 5. II. GUIDE OF MACHINES WITH PROGRAM CONTROL 84. III. SCREW NUT GEARS IN FEED DRIVES OF MACHINES WITH PROGRAM CONTROL 139. IV. SELFADJUSTING SYSTEMS IN MACHINES WITH PROGRAM CONTROL 176. V. ANALYSIS OF FEED DRIVE SYSTEM 219. VI. COMPENSATION OF ERRORS OF "SPID" SYSTEM DURING PROGRAM DESIGN 273. APPENDIXES 296. I. TECHNICAL DATA OF MACHINES WITH DIGITAL PROGRAM CONTROL AND SYSTEMS OF CONTROL 296. II. TABLES FOR DESIGNING GUIDES AND SCREW NUT GEARS 312. III. FOREIGN PATENTS ON SYSTEMS AND UNITS OF PROGRAM CONTROL WITH MACHINES 328. LITERATURE 333. THE BOOK PRESENTS QUESTIONS OF INCREASING PRECISION IN DESIGN OF MACHINES WITH PROGRAM CONTROL AND MAINTENANCE OF THEM DURING OPERATION. THE BOOK WAS INTENDED FOR ENGINEERS, WORKING ON DIGITAL CONTROL BY MACHINES. IT MAY ALSO BE USED BY SPECIALISTS OF ALLIED AREAS OF TECHNOLOGY AND SCIENTIFIC WORKERS OF MECHANICAL ENGINEERING INSTITUTES.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--ZONOV70  
TITLE--THEORY OF AN OPTICAL RESONATOR WITH LENSES -U-  
AUTHOR--(02)--KORZHENEVICH, I.M., RATNER, A.M.  
COUNTRY OF INFO--USSR  
SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, FEB. 1970, P. 191-200  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--RESONATOR, OPTIC PROPERTY, SURFACE PROPERTY  
CTRL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1992/1476 STEP NO--UR/0185/70/015/000/0191/0200  
CIRC ACCESSION NO--AP0112470  
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112470

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THEORETICAL STUDY OF A PARTIALLY FILLED OPTICAL RESONATOR CONTAINING AN ACTIVE MEDIUM AND LENSES. THE CAUSTIC SURFACE, THE PRINCIPAL RADIATION CHARACTERISTICS, THE NUMBER OF TRANSVERSE MODES, THE WORKING VOLUME OF THE ACTIVE MEDIUM, THE WORKING SURFACE OF THE REFLECTORS AND THE ANGULAR DIVERGENCE ARE DETERMINED FOR THIS RESONATOR. ALSO DETERMINED ARE THE OPTIMAL CONDITIONS FOR CORRECTING ANGULAR DIVERGENCE AND FOR RADIATION FOCUSING. THE METHOD APPLIED IN THE STUDY IS ALSO APPLICABLE IN AXIALLY SYMMETRICAL RESONATOR DESIGNS WITH ARBITRARY NUMBERS OF PLANE OR SPHERICAL REFRACTING SURFACES.

FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR,  
FIZIKO-TEKHNICHNII INSTITUT NIZ'KIKH TEMPERATUR, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 043 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--OPTIMAL CONDITIONS FOR NARROWING THE SPECTRUM OF A LASER WITH  
STRONGLY DEGENERATE MODES -U-  
AUTHOR--(04)-KURZHENEVICH, I.M., RATNER, A.M., SOLOVYEV, V.S., TYUNOVA,  
T.I.  
COUNTRY OF INFO--USSR  
SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, VOL. 15, APR. 1970, P. 821-823  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--LASER RADIATION SPECTRUM, RESONATOR, MULTIMODE LASER, LASER  
BEAM COHERENCE, LINE WIDTH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/1471 STEP NO--UR/0104/70/CL5/000/0821/0823  
CIRC ACCESSION NO--AP0118460

UNCLASSIFIED

2/2 043

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118460

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATION OF THE INFLUENCE OF THE RESONATOR'S GEOMETRICAL PARAMETERS ON THE NUMBER OF TRANSVERSE MODES IN A SOLID STATE LASER HAVING LENSES WHICH ARE USED TO OBTAIN SUFFICIENT ANGULAR DIVERGENCE FOR TOTAL SPECTRAL OVERLAP OF THE EMITTED LONGITUDINAL MODES (STRONGLY DEGENERATE CASE). IT IS SHOWN THAT THE DEPENDENCE OF THE NUMBER OF TRANSVERSE MODES ON THE RESONATOR PARAMETERS HAS A SHARP MAXIMUM FOR A RESONATOR WHOSE LENGTH IS LARGE IN COMPARISON WITH THE LENGTH OF THE ACTIVE ELEMENT. THIS MAXIMUM CAN BE USED FOR EXPERIMENTAL PRODUCTION OF A STABLE REGULAR KINETIC MODE OF EMISSION WITH A NARROW SPECTRAL LINE.

UNCLASSIFIED



PROCESSING DATE--20NOV70

UNCLASSIFIED

1/2 059

TITLE--KINETICS OF COUPLED LASERS -U-

AUTHOR--(02)-RATNER, A.M., CHERNOV, V.S.

COUNTRY OF INFO--USSR

SOURCE--UKRAINS'KII FIZICHNII ZHURNAL, VOL. 15, FEB. 1970

DATE PUBLISHED--FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER, LASER POWER OUTPUT, DAMPING MOMENT, KINETIC THEORY,  
OPTIC PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1460

STEP NO--UR/0185/70/015/000/0331/0333

CIRC ACCESSION NO--AP0112454

UNCLASSIFIED

2/2 059

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL ANALYSIS OF THE KINETIC CHARACTERISTICS OF THE OPERATION OF COUPLED LASERS HAVING MUTUALLY PENETRATING RADIATION PATTERNS PARALLEL TO EACH OTHER'S OPTICAL AXIS. CONDITIONS OF EMISSION POWER DAMPING IN COUPLED LASERS ARE DISCUSSED IN DETAIL. A POWER DAMPING MECHANISM IS PROPOSED. FACILITY: AKADEMIIA NAUK UKRAINS'KOI RSR, FIZIKO TEKHNIICHNII INSTITUT NIZ'KIKH TEMPERATUR, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

1/2 037 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--TEMPERATURE TIME RELATIONSHIP OF THE STIMULATED ELASTICITY LIMIT OF  
POLYMERS -U-  
AUTHOR-(02)-RATNER, S.B., BROKHIN, YU.I.  
COUNTRY OF INFO--USSR  
SOURCE--SOVIET PHYS. DOKL. (USA), VOL. 14, NO. 10, P. 807-10 (APRIL 1970)  
IN RUSSIAN., P. 1014-17  
DATE PUBLISHED---APR70

SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--ELASTICITY, POLYMER, STRESS ANALYSIS, STRAIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605030/E06 STEP NO--US/0000/70/014/010/0807/0810

CIRC ACCESSION NO--AT0141058

UNCLASSIFIED

2/2 037

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0141858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF SOME EXPERIMENTS IN THE PROCESS OF STIMULATED ELASTICITY WITH A CONSTANT SPECIFIED STRESS ARE CONSIDERED. THE TEMPERATURE TIME LAW GOVERNING THE CHANGE IN THE STIMULATED ELASTICITY LIMITS,  $G_{SUBB}$ , IS VERIFIED. THIS LAW IS REPRESENTED BY THE EQN.  $0 \text{ EQUALS } 0_{SUB6} \text{ EXP. } ((U \text{ PRIME } SUBO - \text{GAMMA PRIME } G_{SUBB}) - R((L-T) - (L-T \text{ PRIME } SUBP)))$  WHERE  $\theta$  IS THE CRITICAL PERIOD OF ACTION REQUIRED TO REDUCE  $G_{SUBB}$  TO THE VALUE OF THE APPLIED STRESS AND IS KNOWN AS THE STRAIN DURABILITY  $\tau$ . THE STRAIN CONSTANTS OF THIS EQUATION WE COMPARED WITH THE STRENGTH CONSTANTS OF THE EQN.  $\tau \text{ EQUALS } \tau_{SUBO} \text{ EXP } T_{SUBP}$  FOR THE SAME MATERIALS AND SAME MATERIALS AND SAME MODE OF LOADING. (13 REFS). FACILITY: SCI. RES. INST., MOSCOW, USSR.

UNCLASSIFIED

1/2 036 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--EFFECT OF POLY(VINYL CHLORIDE) PLASTICIZATION ON THE LIFE OF FILM  
WELDS -U-  
AUTHOR--(03)-DODIN, M.G., RATNER, S.B., BARSHTEYN, R.S.  
COUNTRY OF INFO--USSR  
SOURCE--PLAST. MASSY 1970, (3), 54-6  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR  
TOPIC TAGS--POLYVINYL CHLORIDE, PLASTIC FILM, WELD EVALUATION, PLASTIC  
MECHANICAL PROPERTY, RUPTURE STRENGTH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1790

STEP NO--UR/0191/70/000/003/0054/0056

CIRC ACCESSION NO--AP0123587

UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123587

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DURABILITY OF PLASTICIZED  
POLY(VINYL CHLORIDE) (I) WELDED BONDS OBEYED THE RATNER EQUATION (S. B.  
RATNER, 1968). PLASTICIZATION OF I DID NOT AFFECT THE MAX. ACTIVATION  
ENERGY OF FAILURE OF THE WELDED BOND, BUT DID AFFECT THE STRUCTURE  
SENSITIVE CONST. UPSILON, ANALOGOUS TO UPSILON IN THE ZHURKOV EQUATION  
(S. N. ZHURKOV, 1961). INCREASED DEGREE OF PLASTICIZATION LOWERED THE  
TEAR STRENGTH AND INCREASED THE PEELING STRENGTH.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--DOSE DISTRIBUTIONS IN ECCENTRIC ROTATION GAMMA IRRADIATION -U-  
AUTHOR-(04)-BELOV, S.A., KAVESHNIKOVA, S.V., SIZOV, P.P., RATNER, T.G.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 86-93  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--GAMMA IRRADIATION, RADIOTHERAPY, RADIATION DOSAGE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1998/0370 STEP NO--UR/0241/70/015/005/0086/0093  
CIRC ACCESSION NO--AP0121058  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121058

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE ARTICLE CONTAINS A METHOD OF  
CALCULATION OF DOSE FIELDS IN ECCENTRIC ROTATION GAMMA IRRADIATION ON  
ROTATION GAMMA APPARATUS WITH A 75 CM RADIUS OF ROTATION IN A HOMOGENOUS  
CYLINDRICAL PHANTOM 30 CM IN DIAMETER. THE REGULARITIES OF ALTERATION  
OF THE POSITION OF THE MAXIMAL DOSE REGION DEPENDING UPON THE ANGLE OF  
ROTATION, WIDTH OF STATIC FIELD AND ECCENTRICITY. FACILITY:  
DOZIMETRICHESKAYA LABORATORIYA MOSKOVSKOY GORODSKOY BOL'NITSY NO2 AND  
SEKTOR ISTOCHNIKOV IZLUCHENIYA I DOZIMETRII INSTITUTA OBSHCHEY GENETIKI  
AN SSSR.

UNCLASSIFIED



1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--ON AUXILIARY EQUIPMENT OF DEPARTMENTS OF RADIUM THERAPY --U-  
AUTHOR--(03)--NIKULIN, YU.P., RATNER, T.G., BIBERGAL, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 5, PP 38-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--RADIUM, RADIOTHERAPY, IRRADIATION DOSIMETRY/(U)DIK DOSIMETER,  
(U)DMA DOSIMETER  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0273 STEP NO--UR/0241/70/015/005/0038/0040  
CIRC ACCESSION NO--AP0120962  
UNCLASSIFIED

2/2 . 016

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120962

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER SETS FORTH THE EQUIPMENT  
REQUIRED FOR DOSIMETRIC PREPARATION AND INSTITUTION OF RADIUM THERAPY.  
A DESCRIPTION IS GIVEN OF THE DESIGNED DOSIMETERS, INTEGRAL CONDENSATOR  
DOSIMETER "KIK" AND "DM-A" POWER DOSIMETER, AS WELL AS SET OF WATER AND  
TISSUE EQUIVALENT PHANTOMS. FACILITY: INSTITUT OBSHCHEY  
GENETIKI AN SSSR, MOSCOW.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--SELECTIVE ACCUMULATION AND EXCLUSION OF INDIVIDUAL MINERAL  
SUBSTANCES IN SOYBEAN NODULES -U-  
AUTHOR-(03)-RATNER, YE.I., AKIMOCHKINA, T.A., SAMOYLOVA, S.A.  
COUNTRY OF INFO--USSR  
SOURCE--AGROKHEMIYA 1970, (1), 15-22  
DATE PUBLISHED-----70  
SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--LEGUME CROP, SOIL STRUCTURE, PLANT PHYSIOLOGY, TRACE ELEMENT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/1893 STEP NO--UR/0485/70/000/002/0015/0022  
CIRC ACCESSION NO--AP0127294  
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0127294

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT THE PERIOD OF FRUTITION ON AN ACID SOD PODZOL SOIL THE TITLE NODULES WITH A P CONTENT OF 0.277PERCENT DEVIATE IN THEIR CONTENTS OF AL, MN, CA, K, AND S, THE NODULE-ROOT RATIO BEING 0.04, 0.33, 0.36, 0.27, AND 0.54, RESP., THAT OF CA-MG IS 0.47. THE REQUIREMENTS FOR ATM. N FIXATION SEEMS TO BE LOW FOR CA AND K; P, S, AND MG ARE MORE INPORTANT. FACILITY: INST. FIZIOL. RAST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 535/33/.34:539.18

YAKUTINA, O. A., ~~RATOVSKIY, G. V.~~, FROLOV, YU. L., SERGIYENKO, L. M., ROZINOV, V. G., Irkutsk University, Irkutsk Institute of Organic Chemistry

"Spectral Study of the Mutual Effect of Functional Groups in Molecules of Tertiary Aromatic Phosphines"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 7, No 4, 1971, pp 514-519

Abstract: At this time there is no single view of the reaction between structural groups within molecules of aromatic phosphines, and the various assumptions made about them lead to contradictions in the interpretation of the electron transitions.

The authors studied electron and Raman spectra for the group  $(p-XC_6H_4)_3P$ , where  $X = H, CH_3, OCH_3, OC_2H_5, Cl, Si(CH_3)_2$ , and  $N(CH_3)_2$ , and also for molecules of  $(C_6H_5)_3P(O)$ ,  $(C_6H_5CH_2)_3P(O)$  and finally,  $(m-NO_2C_6H_4)_3P(O)$ .

The reaction was assumed to take place both by the  $p\pi-p\pi$  transition and the  $p\pi-d\pi$  transition mechanisms.

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--INTERACTION OF STRUCTURAL GROUPS IN MOLECULES CONTAINING A  
PHOSPHORUS ATOM AT THE DOUBLE BOND -U-  
AUTHOR-(05)-RATOVSKIY, G.V., DOROKHOVA, V.V., FROLOV, YU.L., GRECHKIN,  
YE.F., KALABINA, A.V.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1124-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--IR SPECTRUM, ORGANIC PHOSPHORUS COMPOUND, MOLECULAR ORBITAL,  
ELECTRON CLOUD, CHLORINE, EXCITATION ENERGY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/1591 STEP NO--UR/0200/70/190/005/1124/1127  
CIRC ACCESSION NO--AT0116999  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116999

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IR SPECTRAL DATA WERE TABULATED IN DETAIL FOR ROCH:CHPOCL SUB2 RPCH:CHPCL SUB2, ROCH:CHPSCL SUB2, AND ROCH:CHPO(ORPRIME1) SUB2, AS WELL AS PHCH:CHPCL SUB2, PHCH:CHPOCL SUB2, PHCH:CHPSCL SUB2 AND PHCH:CHP(O)ET SUB2, WHERE R WAS SELECTED FROM ET, BU, PH OR-P-BRC SUB6 H SUB4, AND R PRIME1 EQUALS ET OR BU; ALSO INCLUDED WAS PHOCH:CBRPSCL SUB2. FROM THESE DATA THE COMPARISON MADE WITH THE CALCD. MO ENERGY LEVELS OF MEP(O)CL SUB2, CH SUB2:CHPOLC SUB2, AND MEOCH:CHPOCL SUB2 SHOWED THE CLEARLY POLAR NATURE OF BOTH THE P(O) AND THE P(CL) BONDS IN THESE COMPOS. THE D ORBITALS OF CL AND P TAKE ALMOST NO PART IN FORMATION OF THE MOLECULAR ORBITALS OF THE OCCUPIED CATEGORIES, BUT THEY DO DET. THE NATURE OF THE RELATIVELY LOW 2, 4 AND 11 VACANT ORBITALS OF THESE MOLS. AS A RESULT THESE MOLS. CAN BE EXPECTED TO SHOW ENHANCED ELECTRONIC POLARIZABILITY AND LOW EXCITATION ENERGIES. THUS, THE PRESENCE OF A POCL SUB2 GROUP AFFECTS THE POLARIZABILITY OF THE ELECTRON CLOUD OF THE DOUBLE BOND, WHILE ALTERATION IN THE DISTRIBUTION OF THE LATTER AFFECTS THE PROPERTIES OF THE P CONTG. GROUPING, WITH SOME PARTICIPATION OF THE CL ATOMS IN THIS PROCESS.

FACILITY: IRKUTSK. GOS. UNIV., IRKUTSK, USSR.

UNCLASSIFIED

UDC 612.8+612.766.1

USSR

NAVAKATYKYAN, O. O., KUNDIYEV, Yu. I., LYSYNA, G. G., BUZUNOV, V. B.,  
HRYSHKO, F. I., DERKACH, V. S., KAPSHUK, O. P., KYRYENKO, A. Ye., KARAKASHYAN,  
A. N., KOVAL'OVA, G. I., RATUSHNA, A. M., TOMASHEVC'KA, L. I., NAGORNA, A. M.,  
and MAYDYKOV, Yu. L., Kiev Institute of the Work Hygiene and Occupational  
Diseases, Kiev

"Nervous Emotional Stresses as a Problem of Modern Work Physiology"

Kiev, Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

Abstract: The introduction of machines and automatic control instrumentation into production lines at plants and factories and at many other institutions requires of workers rapid coordination of actions combined with mental activity. The volume of information input which requires a combination of physical and mental ability has been increasing tremendously for the last decade. This has produced nervous and emotional stresses and disturbances in the normal functions of many human organs. Analysis of many workers from various branches of industry as well as people occupied with mental work has shown that modern technology imposes heavy stresses on an individual which are accompanied by abnormal function of the adrenal glands, and hypothalamus, and the hypophyseal and sympatho-adrenal systems. Measurements have shown that corticosteroid blood and urine

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USSR

NAVAKATYKYAN, O. O., et al., Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

levels exceed the norm by as much as 42-57% in people under heavy stress. Emotional stress with distortion in the function of many systems were more often encountered among the young (17-18 year olds). These malfunctions included the secretion of adrenalin and noradrenalin, and disturbances in hemodynamics. Shifts in physiological functions among different occupational groups under identical stresses occur at different times and are closely related to age. They were more pronounced among older people (31-40 years old). The cardiovascular system occupies a prominent place in labor physiology, and there are many methods and approaches to study it. Some literature methods and those of the authors are described, including instrumentation. Mental work which is accompanied by nervous-emotional stresses influences profoundly the cardiovascular system within a wide range of deviations, including pathological functional disturbances and hypertension. The same is true for other occupations as well. The authors recommend the rational use of working hours and rest periods to avoid overstresses.

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USSR

UDC 681.2.083.8

RATUSHNYY, B. A., KOMAROV, V. A.

"Continuous Set Monitoring of the Deviations of the Parameters of Complex Automatic Control Systems"

V sb. Tezisy dokl. k Nauch.-tekhn. konf. na temu: Probl. sozdaniya sistem upr. sudovymi tekhn. sredstvami, 1971 (Topics of Reports at the Scientific-Technical Conference on Problems of Building Control Systems for Ship Technical Devices, 1971 -- collection of works), Leningrad, 1971, p 44 (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A564)

Translation: A study was made of the principles of constructing set monitoring devices. A block diagram is presented for a system for continuous monitoring of the deviations of automatic control system parameters. The system permits indexing of the maximum deviation of the parameters from the norm in relative units and decoding of the deviating parameter. It also allows the operator to set the rate of arrival of the data, depending on his general work load. Long before an emergency arises, the operator receives a warning of the deviation of the parameters from the norm, acknowledges these parameters, analyzes the situation in advance, and under sufficiently calm circumstances determines the strategy for intervention in the control processes.

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USSR

UDC 621.318.5

RATUSEVYY B. A.

"Displacement Indicator"

USSR Author's Certificate No 304637, Cl. H 01 h 3/00, filed 15 Jan 69, published 28 Jun 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A423P)

Translation: The proposed displacement indicator contains a power source, magnetically controlled contacts, a permanent magnet, and a signal relay with a winding. To increase its operating reliability the signal relay winding is connected to the power source through two parallel circuits, one of which contains the first magnetically controlled contact and the contact of the signal relay, and the other, the second magnetically controlled contact with the second magnetically controlled contact displaced from the first contact, and the permanent magnet in the initial position situated closer to the first magnetically controlled contact. 1 illustration.

1/1

- 20 -

Acc. Nr:

AP0047311

Ref. Code: UK 0300

PRIMARY SOURCE: <sup>R</sup>Ukrayns'kiy Biokhimichniy Zhurnal, 1970,  
Vol 42, Nr 1, pp 35-38

AMINO ACIDIC COMPOSITION OF CALF SKIN PROTEINS  
AND EFFECT OF ULTRA-VIOLET IRRADIATION ON IT

V. N. Golovach, I. B. Ratuch

The Ukrainian Research Institute of Physiology and Biochemistry  
of Agricultural Animals, Lviv

Summary

By means of paper chromatography the percentage content of some amino acids of skin proteins was investigated in ordinary calfs as well as in those with sheared placed under irradiation by the mercury quartz lamps.

It is established tha ultra-violet irradiation of animals in a dose of 190 MR·h/m<sup>2</sup> causes only an inconsiderable decrease in histidine percentage. As to other amino acids under study — cystine, lysine, arginine, sum of asparaginic acid, glycine, serin, sum of glutamic acid and threonine, alanine, tyrosine, valine with methionine, phenylalanine, leucine with isoleucine, their percentage content was not essentially changed.

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REEL/FRAME  
19790829

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USSR

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GVOZDOVER, R. S., LUK'YANOV, A. YE., SPIVAK, G. V., RAU, E. I.,  
BYKOV, M. V.

"Electron Microscopy of Periodic Piezoelectric Fields"

Moscow, Izvestiya Akademii Nauk, Seriya Fizicheskaya, Vol 34,  
No 7, 1970, pp 1483-1491

Abstract: This article discusses problems in the formation of the image field contrast varying periodically with time, computes the amplitudes of the piezoelectric fields producing the contrast on the screen of a mirror or raster electron microscope, and describes an experimental method for visualizing and measuring these piezoelectric fields. The piezoelectricity in question takes place on the surfaces of crystals under the action of ultrasonics, a phenomenon often investigated by electron microscopes stroboscopically operated. The results of experiments performed on crystals of quartz, lithium niobate --  $\text{LiNbO}_3$ , and cadmium sulfide ( $\text{CdS}$ ) are given and the ultrasonic delay lines from the quartz and  $\text{LiNbO}_3$  crystals investigated. Gratitude is expressed to V. Ye. Lyamov for his useful comments on some of the results of the work.

1/1

USSR

UDC 621.382.539.1.074

KORZYUK, T. G., OVECHKIN, V. V., PANSHIN, A. Z., RAU, L. F., SMIRNOV, A. N.,  
TAUBER, A. G., SHCHEBLOT, U. V., YUROVSKIY, A. V.

"Use of Thermoelectric Microrefrigerator for Cooling of Gamma-Spectrometric  
Si(Li) Detectors"

V sb. Prikl. yadern. spektroskopiya (Applied Nuclear Spectroscopy --  
Collection of Works), Issue 1, Moscow, Atomizdat, 1970, pp 223-232 (from  
RZh--Elektronika i yeye primeneniye, No 5, May 1971, Abstract No 5B257)

Translation: The construction and production technology of Si(Li) Gamma  
radiation detectors with a thickness of the sensitive region up to 10 mm  
are described. The spectrometric properties are studied of such detectors,  
which are cooled with the aid of thermoelectric microrefrigerators of  
temperatures of minus 40°C. It is found that such cooled detectors make  
it possible to realize an energy resolution of 1-1.8 percent for  $^{137}\text{Cs}$ .  
Several possible and promising uses in applied spectrometry of the de-  
tectors described are shown.

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USSR

UDC: 8.74

RAU, O. I.

"Apparatus for Dynamic Memory Distribution in the SIMPR System"

Sb. rabot Vychisl. tsentra Mosk. un-ta (Collected Works of the Computing Center at Moscow University), 1971, vyp. 17, pp 65-89 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V533)

Translation: The paper describes the dynamic memory distribution apparatus which is an integral part of the SIMPR modular programming system. This apparatus is designed for carrying out operations concerned with control of memory utilization, with dynamic allocation of objects of the SIMPR system, and with manipulations on these objects. The described apparatus is represented in the SIMPR system by a certain set of macro-operations which are called operations of the dynamic, and are carried out by a set of sub-program systems called the dynamic. The author considers a class of objects for which the given apparatus is designed, and introduces the corresponding set of operations of the dynamic. The dynamic memory distribution apparatus is outlined in a form which does not depend on the particular features of specific computers. V. Mikheyev.

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USSR

UDC: 8.74

ZHOGOLEV, Ye. A., RAU, O. I.

"Principles of Optimum Distribution of Memory"

Sb. rabot hisl. tsentra Mosk. un-ta (Collected Works of the Computing Center at Moscow University), 1971, vyp. 17, pp 18-36 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V531)

Translation: The paper discusses problems of allocating various parts of programs and the data used in executing these programs in the memory of digital computers during execution of each program. Optimum memory distribution is understood to mean memory utilization such that first of all the possibility of compiling both maximum-speed programs and fairly general-purpose programs is retained, and secondly, the most economic use of the memory is ensured in carrying out the first requirement. Optimum memory distribution is based on a combination of automatic methods of allocating program parts and various data groups in the memory with the participation of programmers in isolating these parts and data groups, and also in selecting the appropriate method of allocation in the memory for each of them. In addition, the memory distribution scheme is constructed with regard to a certain program concept which has a pattern of relatively independent compilation of the individual parts of the program. During its execution, each

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USSR

ZHOGOLEV, Ye. A., RAU, O. I., Sb. rabot Vychisl. tsentra Mosk. un-ta, 1971, vyp. 17, pp 18-36

program generates a certain data analysis process which in the computer is a certain set of machine words called values. The values are related to certain objects of the process. An object of the process is understood to mean something whose content is a value; this content may vary in this process. It is noted that the given scheme of memory distribution is part of the modular programming system. V. Mikheyev.

2/2

USSR

UDC 629.78.062.2

PETROV, B. N., and RAUCHENBAKH, B. V.

"Soviet Work on Automatic Control in Outer Space"

Moscow, Tr. II Mezhdunar. Simpoz. IFAK po Avtomat. Upr. v Mirn. Ispol'z. Kosmich. Prostranstva. Upr. Kosmich. Apparatami i Korablyami (Works of the Second International Symposium of the International Federation of Automatic Control on Automatic Control for the Peaceful Use of Cosmic Space. Control of Space Vehicles and Space Ships), 1971, pp 11-18 (from Referativnyy Zhurnal, Raketostroyeniye, No 12, Dec 71, Abstract No 12.41,29)

Translation: The article deals with the principal results, in the USSR, of the theory and practice of the automatic control of space vehicles during the ten years that have elapsed after launching of the first Soviet artificial earth satellite.

1/1

- 16 -

USSR

UDC: 51:155.001.57:681.3.06

RAUDIS, Sh. Yu.

"On the Volume of a Teaching Sample for the Classifier of a Recognition Device"

V sb. Obnaruzh. i raspoznavaniye. Planir. eksperimentov (Detection and Recognition. Planning of Experiments--collection of works), Moscow, "Nauka", 1970, pp 64-66 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V651)

Translation: A brief survey of achievements in the given area with comparative analysis of the results and practical modeling. An investigation is made of the trajectory of mathematical expectation of the distribution of probabilities of the classifier error with teaching samples of various volumes. Bibliography of 16 titles. A. Krasilov.

USSR

LAST NAME  
RAUDIS SHARUNAS

"Classification of Objects with Independent Means"

Stat. Probl. Upr. Tr. Seminara. Vyp. 1 [Statistical Problems of Control, Works of a Seminar, No 1 -- Collection of Works], Vil'nyus, 1971, pp 87-95 (Translated from Referativnyy Zhurnal, Kibernetika, No 1, 1973, Abstract No 1 V289 by Z. Bezhayeva).

Translation: The problem is studied of classification of  $k$   $p$ -dimensional sets with generalizing samples and with two types of assumptions concerning the mean values of the sets: a) the mean values of the sets fall on a line in a  $p$ -dimensional space; b) the mean values of the sets follow the normal distribution. Under these assumptions, discrimination algorithms are presented, using only the estimates of mean values of the sets with respect to learning samples.

The numbering of the pages is mixed and there are misprints in the work.

1/1

- 32 -

RAUKHMAN, M.R.

SVPS 59208  
6-73

VI-64. CHARACTERISTICS OF THE DISTRIBUTION OF IMPURITIES IN WEAKLY ALLOYED  
INSB SINGLE CRYSTALS

Article by M. S. Miralovskaya, Ye. B. Korob, M. R. Raukman, N. G. Sorokina,  
Moscow; Novosibirsk, III Sibirskiy po Proektirovaniyu i Stroyeniyu Poluprovodnikov  
Kafedra i Plenuk, Novosibirsk, 12-17 June, 1972, p. 771

A study was made of weakly alloyed InSb single crystals with commensurate  
concentrations of impurities of the donor and acceptor types. The methods of  
resistor electron microscopy and measuring the relative values of the thermal  
emf (a. u.) were used to discover the macroinhomogeneities arising on growth of  
such single crystals by the Czochralski method: the growth stress, the face  
effect and also the circular transitions, the appearance of which is connected  
with the specific nature of the adiabatic distribution and the degree of  
compensation of the material.

The methods of resistor electron microscopy were used to demonstrate for  
the first time that the region of annular transition comprises a series of  
microtransitions formed in the growth stress at the conjugation points of the  
p-type material (on the face) and the p-type material (outside the face).

In the investigated single crystals with extended p-n-junctions in certain  
cases additional p-n-junctions were detected (the arrangement was parallel to  
the basic arrangement) arising in the growth stress as a result of overcompensation  
of the basic carriers for the formation of the extended p-n-junction.

The method of taking curves of the current-voltage signal was used to reveal  
the differences in distribution gradients of the impurity near the p-n-junctions  
by which it is possible to judge the sharpness of the junction.

The method of resistor electron microscopy was used in the InSb p and n-type  
single crystals to define the diffusion lengths of the minority carriers the  
values of which are in good agreement with the calculated data.

USSR

UDC 517.91

RAUPOV, I. Sh., Tadjik University imeni V. I. Lenin

"On the Index of the Periodic Solution of a System of Differential Equations with a Homogeneous Principal Part" (Presented by A. D. Dzharayev, Corresponding Member Academy of Sciences Tadjik SSR)

Dushanbe, Doklady Akademii Nauk Tadjikskoy SSR (Proceedings of the Academy of Sciences Tadjik SSR). Vol 13, No 10, 1970, p 10-13

Abstract: A system of ordinary differential equations is given:

$$\frac{dx}{dt} = P_m(t, x) + F(t, x), \quad (1)$$

where  $P_m(t, x)$  and  $F(t, x)$  are continuous over the set of variables  $t \in (-\infty, +\infty)$ ,  $x \in R_n$  is an  $n$ -dimensional space, and  $\omega$  is periodic over  $t$ : that is,

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USSR

RAUPOV, I. SH., Doklady Akademii Nauk Tadzhiskoy SSR, Vol 13, No 10, 1970,  
p 10-13

$$P_m(t, x) \equiv P_m(t + \omega, x), F(t, x) \equiv F(t + \omega, x).$$

A theorem is given for calculating the index of the periodic solution:  
Let system (1) satisfy the condition that  $x = 0$  is an isolated zero of a given  
finite vector field, and when  $0 < m < 1$ , let

$$\frac{dx}{dt} = P_m(t, x)$$

not have nonzero periodic solutions, and for each value  $\tau \in [0, \omega]$  let the  
system

$$\frac{dx}{dt} = P_m(\tau, x)$$

USSR

RAUPOV, I. Sh., Doklady Akademii Nauk Tadzhiskoy SSR, Vol 13, No 10, 1970.  
p 10-13

not have bounded solutions on the axis  $-\infty < t < \infty$ .  
Then for any  $m > 0$  and  $m \neq 1$  the index of zero  $\omega$ , the periodic solution of  
system (1) on a sphere of sufficiently small radius, is equal to the index of  
zero  $x = 0$  of the given vector field. The author thanks T. Sabirov and E.  
Mukhamediyev for guiding this work. Orig. article has 8 refs.

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USSR

RAUPOV, Sh. A., Surkhandar'ya Oblast Hospital

"Side Reactions of Some Antibiotics Under Hot-Climate Conditions in the City of Termez"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 11, Nov 70, pp 53-54

Abstract: Intracutaneous tests were performed on 16,098 patients treated with penicillin, streptomycin, and bicillin from September 1966 to December 1967. Sixty of the patients showed various degrees of susceptibility to antibiotics. The antibiotic dose does not appear to have any significance in regard to susceptibility, but the severity of the effects is aggravated by a large dose. The largest number of cases occurred from May to September. Storage of the antibiotics in the dark at 8°C was recommended. The increase of toxic manifestations in the summer obviously depends on meteorological factors which enhance the excitability of the autonomic nervous system and change the hemodynamics and water-salt equilibrium. Antibiotics should be administered only in medical institutions or under the supervision of medical workers acquainted with the general symptoms of the side-effects of antibiotics and who know how to provide emergency treatment.

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1/2 025  
-----UNCLASSIFIED  
PROCESSING DATE--16OCT70  
TITLE--STUDY OF THE EXCRETION OF PURINES AND URIC FROM URINE OF PATIENTS  
SUFFERING FROM LEUKEMIA WITH VARIOUS CONTENT OF COBANIDE COMPOUNDS IN  
AUTHOR--(05)--MYASISHCHEVA, N.V., SHERMET, Z.I., LEVINA, G.D., LORIE,  
YU.I., RAUSHENBAKH, M.O.  
COUNTRY OF INFO--USSR  
SOURCE--PROBL GEMATOL PERELIV KROVI 15(1), 36-43. 1970  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LEUKEMIA, URINE, ORGANIC ACID, PURINE, EXCRETION, VITAMIN,  
COBALT COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/0248

STEP NO--UR/9080/70/015/001/0036/0043

CIRC ACCESSION NO--AP0117500  
UNCLASSIFIED

2/2 025

CIRC ACCESSION NO--AP0117500

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-O-

ABSTRACT. A TOTAL OF 24 PERSONS WERE  
EXAMINED. IN THE PATIENTS WITH INCREASED LEVEL OF B SUB12 IN THE BLOOD  
NOT ONLY AN INTENSIFIED EXCRETION IN URIC ACID WAS SEEN, BUT ALSO AN  
INTENSIFIED EXCRETION OF PURINES AND OF THEIR METHYLATED DERIVATIVES.  
FACILITY: INST. EXP. CLIN. ONCOL., ACAD. MED. SCI. USSR, MOSCOW,  
USSR.

UNCLASSIFIED

ANo 012008

AUTHORS--

25 UR9007  
ANOKHIN, S., AND GALLAY, M., MERITORIOUS TEST PILOTS,  
U.S.S.R., KUPFER, M. AND GRIBOVSKIY, V., AIRCRAFT  
DESIGNERS, ~~TSYBIN, R.~~ AND PYSHNOV, V., MERITORIOUS  
SCIENTISTS AND ENGINEERS, RAUSHENBAKH, V., CORRE-  
SPONDING MEMBER OF THE ACADEMY OF SCIENCES, AND  
KOSTENKO, I., CANDIDATE OF TECHNICAL SCIENCES

TITLE--

WINGS FOR THE IMPOSSIBLE DREAM

NEWSPAPER--

KOMSOMOL, SKAYA PRAVDA, JANUARY 15, 1970, P 2, COLS 3-6

ABSTRACT--

THE AUTHORS ARE PROPOSING THE ESTABLISHMENT OF AN INTER-  
AGENCY COMMISSION ON GLIDERS AND SMALL-ENGINE PLANES  
WHICH WOULD GUIDE AND COORDINATE ALL THE ACTIVITIES  
CONNECTED WITH DO-IT-YOURSELF AIRCRAFT.

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RATUSHNAYA M. V. 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70 3

239707 ANABAENA VARIABILIS K-1 is a new more effective strain of blue-green algae.

Anabaena variabilis which fix atmospheric nitrogen. When cultured in a nutrient medium not containing nitrogen, the strain K-1 can fix up to 11 mg of nitrogen per litre in a dry, (compared with 4.4 mg/1 day of other strains of this species) the strain K-1 was found in the river Uzh in Zhitomir district. Barrel-like grainy cells have a width of 4.2 - 5 $\mu$  and a length of 2.8-6.3 $\mu$ . Oval spores are associated with heterocysts. Blue-green colours accumulate on the surface of the medium. The strain can be cultivated under stationary

aerobic conditions or with forced supply of air enriched in CO<sub>2</sub>. In the first case the pH changes from 6.5 to 9, in the second from 6.5 to 7.0. The optimum temp. is 33-35°C. A suitable liquid

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AA0038357

medium contains (in mg./ml):  $\text{KH}_2\text{PO}_4$  20,  $\text{MgSO}_4$  50,  $\text{FeSO}_4$  10, triton B 16,  $\text{CaCO}_3$  750 and minor amounts of micronutrients including  $\text{Ca}(\text{NO}_3)_2$ ,  $\text{CuSO}_4$ ,  $\text{ZnSO}_4$ ,  $\text{MnSO}_4$ ,  $\text{H}_3\text{BO}_3$  and ammonium molybdate. A wide range of amino acids are produced, including cystine, lysine, glutidine, arginine, etc. The cultivation can be carried out in enclosed systems or as "green fertiliser" in rice fields. 23.2.67. as 1139173/30-15, RUBENCHIK, L.I. et al. (11.8.69) Bul. 11/18.3.69. Class 45f, Int. Cl. A 01g. |

AUTHORS: Rubenchik, L. I.; Kordyum, V. A.; Smirnova, R. N.; Zharova, L. G.; Kosenko, L. V.; Ratushnaya, M. Ya.; Kirillova, V. S. LD

3/2  
19731486

USSR

UDC 661.665.1

SAMSONOV, V. P., RAUTBORT, A. YE., VAL'YANO, G. YE., SEREBRENNIKOVA, V. YE.,  
and PROKHOROVA, I. V., Institute of High Temperatures, Academy of Sciences  
USSR

"Filamentary Crystals in SiC-Base Ceramics Containing Chromium and Titanium"  
Moscow, Neorganicheskiye Materialy, No 3, Mar 73, pp 492-493

Abstract: The structural features of filamentary crystals formed in SiC-base ceramics containing Cr and Ti were examined by x-ray diffraction and electron microscopy. The thickness of filamentary crystals fluctuated between 40 Å and 1000 Å, filaments 300-360 Å wide were most often encountered and, in many cases, their length exceeded 4 Å (their exact length could not be determined). In certain cases the crystal did not fully adhere to the basic phase but was found in the channel. Calculations based on measurements of channel and filament width showed that the difference between channel and filament radii is significantly greater than the minimum dimension (24 Å). This verifies that some filamentary crystals can be found in channels. On the basis of analysis of calculations from microdiffraction photographs, it was possible to identify the filaments as single crystals. Diffraction pictures obtained for ceramics

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USSR

SAMSONOV, V. P., et al., Neorganicheskiye Materialy, No 3, Mar 73, pp 492-493  
with Cr and Ti were analogous. Indicated differences obtained in this work  
of filamentary single crystals of  $\text{-Si}_3\text{N}_4$  from earlier known filaments makes  
it possible to hypothesize that the first ones are formed by a different method  
than the second which, strictly speaking, cannot be called filaments. Six  
bibiliographic references.

2/2

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UNCLASSIFIED  
PROCESSING DATE--02OCT70  
DNA FOR PROTOPLASTS OF THE ACTINOMYCES STREPTOMYCINI II TYPE ACTINOPHAGE  
AUTHOR--(02)--KOCHKINA, Z.M., RAUTENSHTEYN, YA.I.  
COUNTRY OF INFO--USSR  
SOURCE--MIKROBIOLOGIYA, 1970, VOL 39, NR 1, PP 125-128  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--ACTINOMYCES, ACTINOPHAGE, DNA, FORMALDEHYDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/1458  
CIRC ACCESSION NO--AP0109518  
STEP NO--UR/0220/70/039/001/0125/0128  
UNCLASSIFIED

ACCESSION NO--AP0109518  
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--02OCT70

ACT. STREPTOMYCINI KRAS B-1, WAS ISOLATED FROM THE ACTINOPHAGE TYPE II  
FOR ACT. STREPTOMYCINI BY PHENOLIC DEPROTEINIZATION. INFECTIOUS DNA  
HAS TWO STRANDED STRUCTURE WHICH WAS PROVED BY DNA REACTION WITH  
FORMALDEHYDE. UNDER OUR EXPERIMENTAL CONDITIONS THIS DNA WAS NOT  
INFECTIOUS FOR PROTOPLASTS OF ACT. OLIVACEUS 8238, RESISTANT TO THE  
ACTINOPHAGE TESTED. CONCENTRATIONS OF THE ACTINOPHAGE NUCLEIC ACID,  
INFECTIOUS FOR PROTOPLASTS, WERE NOT INFECTIVE FOR THE INTACT MYCELIUM  
OF ACT. STREPTOMYCINI AND ACT. OLIVACEUS.

UNCLASSIFIED

UNCLASSIFIED  
TITLE--OBTAINING OF AND SOME PROPERTIES OF VIRULENT MUTANTS OF TEMPERATE  
PHAGES OF A POLYLYSOGENIC PROACTINOMYCES (NOCARDIA) FRUCTIFERI -U-  
AUTHOR--(05)-RAUTENSHTEYN, YA.I., TIKHONENKO, A.S., SOLOVYEVA, N.YA.,  
BELYAYEVA, N.N., FILATOVA, A.D.  
COUNTRY OF INFO--USSR

R  
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2,  
PP 272-282  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PHAGE, ACTINOMYCES, ANTIBIOTIC, MICROORGANISM MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1990/1376

STEP NO--UR/0216/70/000/002/0272/0282

CIRC ACCESSION NO--AP0109450

UNCLASSIFIED

CIRC ACCESSION NO--AP0109450 UNCLASSIFIED PROCESSING DATE--02OCT70  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROACTINOMYCES (VOCARDIA)  
 FRUCTIFERI 5339 CULTURE PROVED TO BE POLYLYSOGENIC. ALL THE TEMPERATE  
 PHAGES PRESENT IN THIS CULTURE HAVE SHOWN HIGH SENSITIVITY TO THE  
 ANTIBIOTIC RUBOMYCIN. AT A CONCENTRATION OF 140 GAMMA-ML OF A  
 RUBOMYCIN A 100PERCENT INACTIVATION OF ALL THE PHAGE PARTICLES TAKES  
 PLACE. TREATMENT WITH THIS ANTIBIOTIC AT CONCENTRATIONS EQUAL TO  
 0.25-20 GAMMA-ML ON FREE PHAGE PARTICLES OF THE EXPERIMENTAL CULTURE  
 AND TREATMENT OF THE LYSOGENIC CULTURE WITH CONCENTRATIONS OF 0.15-100  
 GAMMA-ML CAUSED THE APPEARANCE OF VIRULENT MUTANTS, ABLE TO LYSE THE  
 HOST CULTURE. SPONTANEOUS FORMATION OF VIRULENT MUTANTS WAS OBSERVED AS  
 WELL. COMPARATIVE INVESTIGATION OF THE VIRULENT MUTANTS SHOWED THAT  
 JUDGING BY THE MORPHOLOGY OF THE NEGATIVE COLONIES THEY MAY BE  
 SUBDIVIDED INTO SIX TYPES WHEREAS ACCORDING TO THE SPECTRA OF LYTIC  
 ACTION, ANTIGENIC PROPERTIES AND PHAGE MORPHOLOGY THEY FALL INTO THREE  
 DISTINCT TYPES. THE PHAGES OF THE SAME SEROTYPE ARE IDENTICAL AS TO  
 THE MORPHOLOGY OF THE PARTICLES. ON THE OTHER HAND IN SOME CASES  
 VIRULENT MUTANTS BELONGING TO THE SAME SEROTYPE MAY DIFFER AMONG  
 THEMSELVES WITH RESPECT TO NEGATIVE COLONIES MORPHOLOGY AND THE LYTYC  
 SPECTRUM CHARACTERISTICS. THE FINE STRUCTURE AND SIZE OF VIRULENT  
 MUTANTS PARTICLES ARE DESCRIBED ON THE BASIS OF RESPECTIVE ELECTRON  
 MICROPHOTOGRAPHS. FACILITY: INSTITUTE OF MICROBIOLOGY, ACADEMY  
 OF SCIENCES USSR. FACILITY: INSTITUTE OF MOLECULAR BIOLOGY  
 ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

UDC 576.851.589:615.779

~~PAITENSHTEYN~~ Ya. I., KRUKOVSKAYA, G. Ye., BLOKHINA, T. P., and SOLOV'YEVA, N. Ya., Institute of Microbiology, Academy of Sciences USSR, Moscow

"The Production of Virulent Mutants of Temperate Phages of Lysogenic Cultures of the *Bacillus thuringiensis* Group by the Antibiotic Vancomycin"

Moscow, Mikrobiologiya, Vol 41, No 1, Jan/Feb 72, pp 177-178

Abstract: Fifty-one strains of the following varieties of *Bacillus thuringiensis* were tested: var. *galleriae*, *dendrolimus*, *caucasicus*, *alesti*, and *Bac. thuringiensis*, I serotype. *Bacillus cereus*, *Bac. insectus*, and a pigmented strain similar to *Bac. insectus* were tested simultaneously. Virulent mutants were produced from the fresh growth of all 16 strains of *Bac. thuringiensis* var. *galleriae* cultured on meat-peptone agar to which two drops of vancomycin were added in a concentration of 100 g/ml. Some of the strains were affected by smaller antibiotic concentrations. The presence of a virulent phage was confirmed by its isolation and by testing its multiplication in the homologous bacterial culture from which it was isolated. Vancomycin failed to produce similar results in other subspecies tested.

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USSR

UDC 576.858.9:576.852.4

RAUTENSHTEYN, Ya. I.

"Lysogenicity and Its Biological Significance"

Uspekhi mikrobiologii (Advances in Microbiology). No 7, 1971

Abstract: A review is presented of modern ideas on the nature of lysogenicity. Data are presented on differences in the relationship between moderate and virulent bacteriophages and the cells of microorganisms resistant to them. There is a description of the phenomenon of defective lysogenicity along with data on its prevalence among bacteria and Actinomycetes. The problems connected with the theoretical importance of lysogenicity in microbiology and virology and some branches of medicine are analyzed. Its practical value in some branches of the microbiological industry is discussed.

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USSR

UDC 535.243

AGROSKIN, L.S., PAPAYAN, G.V., and RAUTIAN, L.I.

"An Absolute Microspectroreflectometer"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 1, Mar 71,  
pp 62-65

Abstract: Measuring the dispersion in reflectivity under a microscope is one of the basic diagnostic problems for any branch of science where the coefficients of mirror reflection must be determined for small objects or small segments of large samples. Although a formula exists for determining the spectral coefficients of reflection it is not applicable for use in ordinary microreflectometers and must be converted by using the known coefficients of a standard etalon. Since this complicates the computations and introduces a number of uncontrollable errors it seemed highly desirable that an absolute microspectroreflectometer be designed that would not involve the use of an etalon.

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USSR

AGROSKIN, L.S., et al, Doklady Akademii Nauk SSSR, Vol 197, No 1, Mar 71,  
pp 62-65

The authors describe and illustrate graphically the design of such an instrument. The specifics of the optical circuit make this instrument a reliable one that is free of the errors associated with ordinary instruments of this type.

They give graphs of the spectra of mirror reflection of various samples (Fig 2) and the spectra of reflection and transmission of a multilayer mirror film (Fig 3).

The article has 3 figures and a bibliography of 2 titles.

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- 156 -



USSR

RAUTIAN, S. G., BOBOVICH, Ya. S.,

UDC: 535.375.01

"Concerning Some Particulars of Raman Scattering"

Leningrad, Optika i Spektroskopiya, Vol 34, No 3, Mar 73, pp 617-619

Abstract: The authors discuss the recently discovered experimental effect of Raman scattering by excited molecules with emphasis on two peculiarities of the phenomenon: 1. the initial and final states of the molecules participating in the scattering have greater energy than the intermediate state; 2. some of the Raman lines spectrally overlap with a luminescence band. As a rule, these Raman lines are shaded by lines of "attenuation" or show up only in absorption (in the "negative"). On the other hand, the Raman lines lying outside the luminescence band correspond to emission; i. e., they usually show up in the "positive". It is shown that "interference" of Raman scattering and luminescence could lead to "negative" structures. The proposed explanation for "negativization" of Raman lines is universal in nature and should hold in molecular systems.

1/1

- 72 -

USSR

UDC: None

~~IM. TKHEK-DE, RAUTIAN, S. G.,~~  
~~SERLAGIN, A. M.~~

SAPRYKIN, E. G., SMIRNOV, G. I., and  
"Effect of Laser Field Polarization on Nonlinear Interference  
Effects"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol 62,  
No 5, 1972, pp 1661-1665

Abstract: Experiments are described for investigating the spectral dependence of the absorption coefficient of a weak monochromatic field on the  $3s^2-2p_4$  transition of neon in a strong field interacting with the transition when both fields are in the same direction. The observed effect is the dependence of the form and width of the absorption line for the weak field on the polarization of the fields. A frequency-stabilized He-Ne laser with pressure-selected modes of operation is used as the source of the strong field, its radiation being modulated by a mechanical interrupter. Further details of this rather complicated equipment are given together with a diagram, and the results of the experiment are interpreted. It is noted that the effect observed had been predicted by A. Dienes (Phys. Rev., 174, 400, 414, 1968). The authors are associated with the Semiconductor Physics Institute, Siberian Division of the USSR Academy of Sciences.

1/1

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002202620010-6

UNCLASSIFIED  
CAPTURE OF RESONANCE RADIATION IN GAS SYSTEMS -U-  
PROCESSING DATE--23OCT70  
AUTHOR--(04)--BETEROV, I.M., MATYUGIN, YU.A., RAUTIAN, S.G., CHEBOTAYEV,  
V.P.  
COUNTRY OF INFO--USSR  
SOURCE--ZHURNAL EKSPERIMENTAL'NOY TEORETICHESKOY FIZIKI, 1970, VOL 58, NR  
4, PP 1243-1258  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--RESONANCE ABSORPTION, RADIATIVE CAPTURE, ELECTROMAGNETIC  
INTERACTION, COLLISION INTEGRAL, VELOCITY DISTRIBUTION, GAS DENSITY,  
KINETIC EQUATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/1722  
CIRC ACCESSION NO--AP0106454  
STEP NO--UR/0056/70/Q58/004/1243/1258  
UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R002202620010-6"

ACCESSION NO--AP0106454 UNCLASSIFIED PROCESSING DATE--23OCT70  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A THEORETICAL ANALYSIS AND  
 EXPERIMENTAL INVESTIGATION ARE CARRIED OUT ON THE INTERACTION BETWEEN AN  
 ATOM AND ELECTROMAGNETIC FIELD IN THE PRESENCE OF RESONANCE RADIATION  
 CAPTURE. THE COLLISION INTEGRAL IN THE EQUATION FOR THE DENSITY MATRIX  
 DIAGONAL ELEMENT DUE TO CAPTURE IS STUDIED. THE INTEGRAL KERNEL IS OF  
 THE KEILSON STORER TYPE. INTEGRATION PERFORMED ON AN ELECTRONIC  
 COMPUTER SHOWS THAT THE WIDTH OF A KERNEL DESCRIBING A SINGLE EMISSION  
 ACT IS OF THE ORDER OF THE MEAN THERMAL VELOCITY  $\bar{v}$  AND THE KERNEL IS  
 ASYMMETRIC. THE SECOND ORDER KERNEL DIFFERS FROM A MAXWELLIAN  
 DISTRIBUTION BY SEVERAL PERCENT. THE KINETIC EQUATION SET UP FOR THE  
 DENSITY MATRIX ELEMENTS IS SOLVED BY TAKING INTO ACCOUNT LEVEL  
 DEGENERACY AND COLLISIONS OF THE RESONANCE EXCHANGE TYPE; THE PRESENCE  
 OF A PLANE MONOCHROMATIC LINEAR POLARIZED STANDING WAVE AND CAPTURE OF  
 RESONANCE RADIATION ARE ASSUMED. THE VELOCITY DISTRIBUTION OF THE ATOMS  
 IN THE PRESENCE OF THE FIELD HAS A NARROW DIP (OR PEAK) AND BANDS WITH  
 THE USUAL DOPPLER WIDTH  $k \bar{v}$ . AN EXPERIMENT IS DESCRIBED FOR DIRECT  
 OBSERVATION OF EXCITATION DIFFUSION IN VELOCITY SPACE DURING CAPTURE OF  
 RESONANCE RADIATION. THE PARAMETERS OF THE LAMB DIP IN THE GENERATION  
 POWER CURVE ARE ANALYZED FOR  $x$  EQUALS 1.15  $\mu$  AND  $\lambda$  EQUALS 0.63  $\mu$ .  
 THE STRONG COLLISION HYPOTHESIS CAN BE REJECTED IF RADIATION CAPTURE  
 IS TAKEN INTO ACCOUNT. FACILITY: INST. FIZIKI POLUPROVOODNIKOV,  
 SIBIRSK. OTD, AN SSSR.

UNCLASSIFIED

UNCLASSIFIED  
TITLE--FOUR PHOTON SCATTERING IN A RESONANCE MEDIUM -U-  
AUTHOR--(04)--KIRIN, YU.M., RAUTIAN, S.G., SEMENOV, A.YE., CHERNOBOROD, B.M.  
COUNTRY OF INFO--USSR  
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(7), 340-2  
DATE PUBLISHED--70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--PHOTON; ANGULAR DISTRIBUTION; SPECTRAL DISTRIBUTION;  
MONOCHROMATIC RADIATION; LASER PULSE; RAMAN SCATTERING; RUBY LASER;  
SPECTROGRAPH/(U)DFS8 SPECTROGRAPH  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1036  
CIRC ACCESSION NO--AP0124695  
STEP NO--UR/0386/70/011/007/0340/0342  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VERY STRONG CHANGES OF THE ANGULAR AND SPECTRAL DISTRIBUTIONS OF AN EFFICIENT NONMONOCHROMATIC RADIATION, HAVING PASSED THROUGH A RESONANCE MEDIUM, WERE OBSD. A GIANT PULSE OF A RUBY LASER (SIMILAR TO 50 MW) EXCITED THE STIMULATED RAMAN SCATTERING IN PHNO SUB2 (OR ALPHA CHLORONAPHTHALENE (I)) AND THIS RAMAN SCATTERING, FILTERED FROM THE LASER RADIATION, PASSED THROUGH A CELL CONTG. K VAPORS AND WAS RECORDED BY A DFS,8 SPECTROGRAPH. IN THE CASE OF PHNO SUB2, THE SCATTERING SPECTRUM HAD A WIDTH OF SIMILAR TO 4 CM PRIME NEGATIVE1 AND WAS SHIFTED BY 12 CM PRIME NEGATIVE1 TO THE SHORTWAVE REGION, IN COMPARISON WITH THE RESONANCE LINE (OMEGA SUBO EQUALS 13,042.9 CM PRIME NEGATIVE1). AT VAPOR PRESSURES SMALLER THAN OR EQUAL TO 5 TIMES 10 PRIME NEGATIVE4 TORR, A SMALL FREQUENCY ANGULAR RADIATION DIFFUSION WAS OBSD.: AT SIMILAR TO 5 TIMES 10 PRIME NEGATIVE4 MINUS 5 TIMES 10 PRIME NEGATIVE2 TORR, CHARACTERISTIC WHISKERS APPEARED AT THE FREQUENCIES SMALLER THAN OMEGA SUBO, ANGULAR DISTANCE OF WHICH INCREASED WITH PRESSURE. AT LARGER THAN OR EQUAL TO 0.1 TORR, THE WHISKERS DISAPPEARED FROM THE FIELD OF VIEW AND ONLY A FURTHER BROADENING OF THE FREQUENCY ANGULAR DIAGRAM WAS OBSD. THESE EFFECTS ARE CONSIDERED A RESULT OF A 4,PHOTON SCATTERING. IN THE CASE OF I, THE L SPECTRUM OF GREAT WIDTH WAS SHIFTED BY 18 CM PRIME NEGATIVE1 FROM OMEGA SUBO TO THE LOWER FREQUENCY REGION. AT SIMILAR TO 10 PRIME NEGATIVE4 MINUS 10 PRIME NEGATIVE3 TORR, WHISKERS WERE OBSD. AS A SIMULTANEOUS PASSAGE OF THE LASER RADIATION AND L OF I THROUGH THE K VAPORS, A BAND OF 2 QUANTA ABSORPTION, RELATED TO THE 4S YIELDS 4D AT. TRANSITION, WAS OBSD. ADDNL.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

3/3 042

CIRC. ACCESSION NO--AP0124695

ABSTRACT/EXTRACT--PREFERENTIAL RADIATION OF THE RED LINES UNDER NONZERO ANGLES AND THEIR SHIFT TO LOWER FREQUENCIES (AS COMPARED WITH AT. TRANSITION FREQUENCIES) INDICATE A POSSIBLE ROLE OF COHERENT PROCESSES.

FACILITY: INST. FIZ. POLUPROV., NOVOSIBIRSK, USSR.

UNCLASSIFIED

Acc. Nr: **AP0043695**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy  
Fiziki, 1970, Vol 58, Nr 3, pp 962-974

**SATURATION EFFECTS FOR LONG-LIVED SYSTEMS  
IN SPATIALLY RESTRICTED FIELDS**

S. G. Rautian, A. M. Shalagin

Some regularities of emission by long-lived systems in spatially restricted fields are considered. It is demonstrated, in particular, that for weak saturation the width of the Lamb «dip» is determined by the natural line width  $\Gamma$ . The effect of recoil during photon emission and absorption on the structure of the «dip» is considered.

REEL/FRAME  
**13770099**

21



Acc. Nr.: AN0045487

R

Ref. Code: UR 9006  
JPRS 50162

Changes in Composition of Underground Waters Can Predict Earthquakes

(Complete translation: "Does The Fountain Know About Earthquakes," (unsigned); Dushanbe, Kommunist Tadzhikistana, 27 January 1970, p 4)

In the opinion of seismologists, the hot waters reaching the surface from the deep-seated layers of the earth's crust can give people advance notice of an impending earthquake. This was first observed by Uzbek scientists during the strong shocks in Tashkent in 1966 and is being verified at present by seismologists of Tadzhikistan. The first to come under their study were thermal sources of underground water which, until now, have been of interest only to doctors.

The numerous weak disturbances of the earth's crust which always precede a sharp earthquake are capable of changing the chemical composition of thermal waters as well as their temperature. Such deviations from the norm are explained by the fact that even after minute shifts in the deep layers of the earth, the water changes its course and overcomes unexpected obstacles before reaching the surface. During this process it is enriched by microelements and becomes hotter or loses some of its heat.

Candidate of Physicomathematical Sciences T. G. Rautiyan, Deputy

Reel/Frame

19780447

12

AN0045487 .

Director of the Institute of Seismology and Earthquake-Proof Construction of the Academy of Sciences of Tadzhikistan, told a Tadzhik News Agency correspondent, "the careful investigation of many sources which, as a rule, may be found in zones of high seismicity has the purpose of assisting in the solution of a most important problem -- the prediction of earthquakes. This is one of the directions of such a search, but not the only one.

"Our specialists are making a detailed study of hundreds of weak and medium-sized disturbances of the earth's crust in an attempt to understand the processes occurring at great depths which are hidden from direct observation. It is notable that the nature of such processes changes before strong earth tremors." [4]

19780448

USSR

UDC: 621.375.121(088.8)

LONDON, S. Ye., RAUTIAN, V. G., TEMKIN, A. S.

"A High-Frequency Amplifier"

USSR Author's Certificate No 265958, filed 24 Jun 68, published 7 Jul 70  
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1D45 P)

Translation: This Author's Certificate introduces an amplifier based on two identical active elements (tubes or transistors) having a common input signal source and a common load. To extend the passband, identical reactive six-pole phase-difference networks of constant impedance are connected at the input and output of the amplifier. Connected between the active elements and the output six-pole phase-difference network is an LC filter made in the form of two longitudinal circuits which are symmetric relative to the common bus, and which are formed by equal inductances and capacitances connected in series with them. The ends of the primary winding of a symmetric transformer are connected to one of the capacitors, while the opposing ends of the secondary are connected to the other capacitor. The inputs and outputs of the longitudinal circuits are connected respectively by inductances to each other, and by capacitors having equal values by pairs, to the common bus.

1/1

USSR

UDC:621.039.325

RAUZEN, F. V., ZAKHAROV, YE. I., RYABCHIKOV, B. YE, KONORCHENKO, V. D.  
and ODINTSOVA, YE. G.

"Use of Sorption Pulsation Columns for Cleaning of Liquid Radioactive  
Wastes"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 27-31

Abstract: This article studies the preliminary results of testing of pulsating sorption columns with a distributor fitting for cleaning of liquid radioactive wastes arriving at the Moscow cleaning station. The design of continuous-operation pulsating columns is described. It is shown that these columns can be used to produce the same purification factors as sorption filters. The productivity of the columns, however, is 4-5 times greater, and the resin charge used is as many times less than the corresponding figures for filters. It was found that the minimum volume of equipment is achieved by using columns with great retention of resin in the apparatus.

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1/2 012 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--KINETICS OF LEAD DISSOLUTION IN ORGANIC ACIDS. II. SOLUBILITY OF  
LEAD SALTS IN ACID SOLUTIONS -U-  
AUTHOR-(03)-CHULANOVA, G.A., GORELIK, G.N., RAYDEL, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--Zh. Prikl. Khim. (Leningrad) 1970, 43(4), 885-7  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--LEAD COMPOUND, CHEMICAL KINETICS, ACETATE, ORGANIC ACID  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0438 STEP NO--UR/0080/70/043/004/0885/0887  
CIRC ACCESSION NO--AP0126191  
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 012

CIRC ACCESSION NO--AP0126191

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE SOLYS. OF PB ACETATE AND PB TRICHLOROACETATE IN THE AQ. SOLNS. OF THE RESP. ACIDS WERE DETD. IN THE PRESENCE OR ABSENCE OF OXIDIZERS (H SUB2 O SUB2) AT 0DEGREES AND 25DEGREES. THESE DATA ARE REQUIRED FOR CALCG. THE DISSOLN. RATE OF PB IN THESE ACIDS IN THE REGION WHERE SALT REMOVAL IS LIMITING. THE SOLY. OF PB ACETATE IN ACOH INCREASES BY 20PERCENT IN THE PRESENCE OF H SUB2 O SUB2 (AT 25DEGREES, 640 AND 680 G-L. IN 3.4N AND 5N SOLNS. COMPARED TO 521.5 AND 580 G-L. WITHOUT H SUB2 O SUB2). SOLY. DATA ARE TABULATED FOR THE ABOVE AND ALSO FOR PBCL SUB2 IN TRICHLOROACETIC ACID SOLNS. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

UDC 911.3.616.9:597.6(571.18)

USSR

KORSH, P. V., RAYDONIKAS, O. V., MAL'KOV, G. B., VORONIN, Yu. K., ZIMINA, V. Ye., KOSTYUKOV, V. P., IVANOV, V. S., FEDOROVA, T. N., YEGOROVA, L. S., RUDAKOV, V. A., CHULOVSKIY, I. K., and SHAYMAN, M. S.

"On Carrier Characteristics and Contacts With Vectors of Viral and Bacterial Infections Among Omskaya Oblast Wild Animals"

V sb. Vopr. infekts. patol. (Problems of Infection Pathology — collection of works) Vyp. 2, Omsk, 1970, pp 75-78 (from RZh-Meditsinskaya Geografiya, No 4, Apr 71, Abstract No 4.36.51)

Translation: A table is presented of species composition of oblast wild animals and their relative population by individual landscape subzones in Omskaya oblast (64 species). Transmission of infections with natural foci was established in 27 species for the following diseases: tickborne encephalitis, Omsk hemorrhagic fever, rabies, tickborne scrub fever, Q fever, tularemia, erysipelas, toxoplasmosis, and leptospirosis.

1/1

- 33 -

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--METHOD FOR OBTAINING FLUOROALKYLARSINES -U-  
AUTHOR--(104)-RAVER, F.H.R., ZALIKINA, L.M., SOROKIN, A.D., VOLKOVA, YE.V.  
COUNTRY OF INFO--USSR  
SOURCE--AUTHOR CERTIFICATE NR 262902  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, NO 7,  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--FLUORINATED ORGANIC COMPOUND, ORGANIC ARSENIC COMPOUND, ALKYL  
RADICAL, GAMMA RADIATION, CHEMICAL SYNTHESIS, CHEMICAL PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3007/1772

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0137012

UNCLASSIFIED



UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 024

CIRC ACCESSION NO--AA0137012

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS ANNOUNCED FOR  
OBTAINING FLUOROALKYLARSINES BY TREATING FLUOROOLEFINS WITH ARSINE. THE  
PROCESS UTILIZES GAMMA RADIATION FOR SIMPLIFICATION.

UNCLASSIFIED

USSR

UDC: 547.242.07

RAVER, Kh. R., ZALIKINA, L. M., SOROKIN, A. D., VOLKOVA, YE. V.

"A Method of Producing Fluoroalkylarsines"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 7, 4 Feb 70, p 28, patent No 262902, filed 20 Jan 69

Translation: This Author's Certificate introduces a method of producing  
fluoroalkylarsines by interacting hydrogen arsenide with fluoroolefins,  
with the object of simplifying the process by carrying out the reaction  
under  $\gamma$ -radiation.

1/1

Hydraulic & Pneumatic

USSR

BELOUSOV, A. I., MAKUSHIN, A. B., GRANIN, S. S., RAVICH, A. V.

"Experimental Study of Flow Characteristics of Dual Radial Hydrostatic Bearing with Self Choking"

Tr. Kuybyshev. Aviats. In-t [Works of Kuybyshev Institute of Aviation], 1972, No 51, pp 99-115 (Translated from Referativnyy Zhurnal Mekhanika, No 5, 1973, Abstract No 5B709, by A. I. Snopov).

Translation: A description and experimental results are produced of a study for determination of the flow rate in a dual hydrostatic bearing with self choking. The bearing has pockets on the shaft, with oil fed into the pockets through apertures in the bushing from a common circular chamber. The apertures are covered with a cylindrical sleeve, rigidly connected to the shaft so that the oil, before entering the feed holes, flows through a circular slit of variable thickness, depending on the displacement of the shaft. The case of symmetrical two-row feed with four chambers per row (dual bearing) is studied. The length of each working portion of the bearing is 55 mm, the shaft diameter is 50 mm. Assuming that the flow rate depends little on eccentricity, tests were performed for the case when the shaft touches the bushing ( $\epsilon = 1$ ). The

1/2

USSR

Belousov, A. I., Makushin, A. B., Granin, S. S., Ravich, A. V., Tr. Kuybyshev. Aviats. In-t, 1972, No 51, pp 99-115.

pressure was varied from 0 to 2 kg/cm<sup>2</sup>. The properties of the oil are not indicated.

Twelve graphs are presented of the dependence of oil flow rate through each end and the summary flow rate as functions of the distance from the pockets to the end, as well as 8 graphs of the dependence of these flow rates on feed pressure for various shaft positions. A significant divergence is noted between theoretical and experimental data on flow rate for each end, and good (within 10%) agreement is noted for summary flow.

Also, certain results of static testing of an individual bearing with self choking with shaft diameter 150 mm are presented, including 5 graphs of loading and flow rate characteristics, the dependences of pressure in the end gap at the exit from the bearing on fluid feed pressure at the input, which reached 100 kg/cm<sup>2</sup>.

USSR

UDC 629.7.036.3.002.3

GRANIN, S. S. and RAVICH, A. V.

"Wear of Graphitized Carbon and Chrome Plated Friction Pair Surfaces of High-Speed End-Contact Seals"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1972, vyp. 51, pp 129-140 (from RZh-34. Aviatsionnyye i Raketnyye Dvigateli, No 4, Apr 73, Abstract No 4.34.99)

Translation: Results are given from tests on the experimental lapping of the friction pairs of end-contact seals which are designated for sealing off shafts from air leaks at a sliding speed up to 100m/sec. Graphitized carbon rings and discs made from the 4OKhNMA material were used for the friction pairs. Original article: 8 illus. and 16 bibl.

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88

USSR

UDC: 629.78.018.3

BELOUSOV, A.I., MAKUSHIN, A.B., GRANIN, S.S. and RAVICH, A.V.

"Experimental Investigation of Flow Rate Characteristic of Coupled Radial Selfthrottling Hydrostatic Bearing"

Kuybyshev, Tr. Kuybyshev. Aviats. In-ta (Transactions of Kuybyshev Aviation Institute), 1972, vyp 51, pp 99-115 (from Referativnyy Zhurnal-Raketostroyeniye, 1973, Abstract No 4.41.264 by T.A.E.).

Translation: Hydrostatic bearings can support heavy loads without rotation of the shaft. However, this involves a relatively high rate of flow through the bearing, increases operating cost of high-power units and reduces their efficiency. With some designs high losses of liquid cannot be tolerated. In such cases the hydrostatic support functions as a bearing and as a seal. At this time, designs of low-flow hydrostatic bearings have been developed. One of such designs is the selfthrottling radial hydrostatic bearing. Investigation results are presented of flow-rate characteristic of a coupled selfthrottling bearing consisting of a block of bearings with a common supply of liquid. 15 illustrations. 1 reference.

1/1

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1/2 039 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--ELECTRON PHONON OPTIMIZATION OF SOME POLYMERS -U-  
AUTHOR--(04)--GINDIN, L.G., RAVICH, I.YA., TOROPTSEVA, T.N., LIDORENKO, N.S.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1374-7  
DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON, PHONON, PYROMELLITIC ACID, POLYMER, HEAT  
CONDUCTIVITY, SILVER, NICKEL, COMPLEX COMPOUND, THERMAL STABILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/1087

STEP NO--UR/0020/70/190/006/1374/1377

CIRC ACCESSION NO--ATO124744

UNCLASSIFIED

2/2 039

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124744

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF AGOAC, NI(OAC) SUB2, CR(OAC) SUB3, OR BE(OAC) SUB2 TO POLYPYROMELLITIMIDE (I) FILMS (PREPD. BY POLYCONDENSING (4,H SUB2 NC SUB6 H SUB4) SUB2 O WITH PYROMELLITIC DIANHYDRIDE AND HEATING THE POLYAMIDE TO 300DEGREES) INCREASED THEIR HEAT COND. COEFF. (LAMBDA), WITHOUT APPRECIABLY INCREASING THE ELEC. COND. COEFF. (SIGMA). WHEN THE POWD. AG, OR NI WERE ADDED TO I BOTH LAMBDA AND SIGMA INCREASED. HEATING SALT FILLED I DECOMP. THE SALTS GIVING METAL GLOBULES SIMILAR TO 100 ANGSTROM IN DIAM. SEPD. BY 300-500 ANGSTROM DISTANCES. THE RELATION BETWEEN LAMBDA AND METAL CONC. (C) IS LAMBDA IS SIMILAR TO C PRIMEALPHA (N. S. LIDORENKO, ET AL. 1969). ALSO SIGMA EQUALS SIGMA SUBO EXP(E-2KT), WHERE E IS THE ACTIVATION ENERGY. THE SALTS DECOMP. AT LOWER TEMP. THAN THE CHELATES SUCH AS II, WHICH IN CASE OF AGOAC WAS STABLE SMALLER THAN OR EQUAL TO 330DEGREES, I.E., ABOVE I PREPN. TEMP.

UNCLASSIFIED



Waveguides

UESR

UDC 621.372.852.1

FEL'DSHTEYN, ALEKSANDR L'VOVICH; RAVICH, LEV RAFAELOVICH

"Synthesis Of Microwave Quadripoles And Octupoles"

Sintez chetyrekhpolynusnikov i vos'mipolynusnikov na SVCh (cf English above),  
Moscow, Izd. "Svyaz", 1971, 2nd ed., revised and supplemented, 388 pp, 192 ill.,  
29 tab. 146 ref. 1 r 62 k.

Abstract: In the monograph timely problems are considered of the analysis and synthesis (of specified frequency characteristics) of various units of a waveguide channel -- filters, directional couplers, abrupt and smooth junctions. Four directions are developed: theory of quadripoles and octupoles with use of wave matrices, synthesis of abrupt and smooth junctions, synthesis of directional couplers (including synthesis of multistage couplers), and microwave filters. The material discussed in the book is designed for engineering workers occupied with problems of microwave channels. The book is also of interest for students of radio engineering faculties and graduate students.

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Foreword

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Introduction

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USSR

FEL'DSHTEYN, ALEKSANDR L'VOVICH; RAVICH, LEV RAFAELOVICH, Sintez chetyrekhpoly-usnikov i vos'mipolyusnikov na SVCh, Moscow, Izd. "Svyaz'," 1971, 2nd ed., revised and supplemented, 388 pp, 192 ill., 29 tab. 146 ref. 1 r 62 k.

Bibliography

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USSR

FEL'DSHTEYN, ALEKSANDR L'VOVICH; RAVICH, LEV RAFAELOVICH, Sintez chetyrekhpolysnykh i vos'mipolysnykh na SVCh, Moscow, Izd. "Svyaz'," 1971, 2nd ed., revised and supplemented, 388 pp, 192 ill., 29 tab. 146 ref. 1 r 62 k.

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1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--SIMPLIFIED METHODS FOR DETERMINING MAXIMUM CARBON DIOXIDE OF  
NATURAL AND PETROLEUM GASES -U-  
AUTHOR--RAVICH, M.B. *R*  
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PROCESSING DATE--23OCT70

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAX. CO SUB2 CONTENT IN GASES  
PRODUCED BY BURNING NATURAL AND PETROLEUM GASES CONTG. GREATER THAN  
75PERCENT CH SUB4 WAS CALCD. WITH AN ERROR OF SMALLER THAN OR EQUAL TO  
0.05PERCENT. FACILITY: MINKH GP IM. GUBKINA, MOSCOW, USSR.

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CHEMICAL ABST. 4-70

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71201p Solubility of calcium tungstate in aqueous solutions of potassium sulfate at high temperatures and pressures. Borovaya, F. E. (Inst. Obshch. Neorg. Khim. Akad. Nauk SSSR, Moscow, USSR). *Zh. Neorg. Khim.* 1970, 15(1), 201-5 (Russ.). Soly. of  $\text{CaWO}_4$  in  $\text{K}_2\text{SO}_4$  solns. was detd. at 500, 448, and 397° and 1300-2300 kg/cm<sup>2</sup> and the results are tabulated.  $\text{CaWO}_4$  dissolves congruently. Its soly. increases markedly with  $\text{K}_2\text{SO}_4$  concn. and has pos. temp. coeff. Effect of pressure on soly. of  $\text{CaWO}_4$  is related to the phase compn. of the solvent ( $\text{K}_2\text{SO}_4\text{-H}_2\text{O}$ ). FMJR

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USSR

RAVICH, N.

"Research Is in Progress Into the Secrets of Vision"

Yerevan, Kommunist, 20 Oct 72, p 4

Abstract: Workers of the Laboratory of Visual Reception of the Academy of Sciences Armenian SSR are conducting research which unites engineers, mathematicians, physiologists and doctors, in the science of bionics. The research, in which American astronauts unwittingly participated, has shown that the retina of the eye is hyper-radiosensitive, i.e., it is capable of visualizing cosmic rays. A report on the mechanics of this phenomenon was given at an international conference on peaceful uses of space by Armenian Scientists and the American professor of biophysics Tobias. Experiments with pigeons in the vicinity of the Byurakan Space Observatory in Armenia seem to indicate that pigeons' unusual tolerance for bright light, including looking almost directly at the sun, can be partly explained as one function of the crests which the birds have. Experiments are continuing under the direction of the laboratory's head, Professor G. Denirchoglyan. They hold promise of eye protection for welders. Recently a patent was obtained for an electro-photographic plate which is directly connected to the work of the Leningrad physicist V. Lyubin on the organization of the retina of the eye. A further  
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USSR

RAVICH, N., Kommunist, 20 Oct 72, p 4

combination of technical and biological collaboration is found in a new television method for observing and studying the bio electrical potential of the eye and other organs and tissues. Experiments involving sight organs are being continued by the entire staff of the laboratory.

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USSR

UDC 621.391.63

AVTONOMOV, V. A., BORISOV, B. S., GRUDININ, A. S., VARLAMOV, I. V., KANDYBA, Pe, Ye., KOLYASNIKOV, V. A., KRASYUK, B. A., MESKIN, S. S., PETRUSEVICH, V. A., POLTORATSKIY, E. A., RAVICH, V. N. and CHICHERIN, L. A.

"High-Speed Optical-Electronic Switch"

Elektron. tekhnika. Nauch.-tekhn. sb. Mikroelektronika (Electronics Technology. Scientific-Technical Collection. Microelectronics), 1971, Issue 2(28), pp 3-8 (from RZh-Elektronika i yeye primeneniye, No 8, August 1971, Abstract No 8B321)

Translation: An optical-electronic pair is developed, on the basis of which a hybrid microcircuit is produced which assures a high galvanic decoupling and is compatible with respect to the input and output parameters with integrated logic circuits manufactured by domestic industry. 4 ill. 4 ref. Summary.

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USSR

UDC 621.38.836.112.15c24

BERKOVSKAYA, K.F., KIRILLOVA, N.V., KONAKOVA, R.V., KRASYUK, B.A., MESKIN, S.S.,  
RAVICH, V.N., SOBOLEV, V.I., SHUMAN, V.B.

"Optoelectronic Pair, Light-Emitting Diode--Photthyristor: New Element Of  
Electronic Apparatus"

V sb. Mikroelektronika (Microelectronics--Collection Of Works), Moscow, Izd-vo  
"Sovetskoye Radio," No 4, 1971, pp 216-228

Abstract: The possibilities are analyzed of a new type of optoelectronic pair, GaAs light-emitting diode--Si photthyristor. The characteristics and parameters are furnished of light-emitting diodes and photthyristors of various types. The possibilities of their optimum combination are considered. Specific regimes of operation are recommended and the parameters of the optoelectronic pair are presented for three regimes of operation. 6 fig. 3 tab. 8 ref.

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USSR

UDC: 621.382.3

IGNATKINA, R. S., KURGANIEVA, N. Ye., KRASYUK, B. A., ~~MAKAROV, S. S.~~  
NEDEL'SKIY, N. F., ~~PAVICH, V. N.~~, TSARENKOV, B. V., Moscow Coordinative  
Institute, Physicotechnical Institute imeni A. F. Ioffe, Academy of  
Sciences of the USSR, Leningrad

"The Gallium Phosphide Electroluminescent Dynistor"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 9, Sep 71, pp  
1695-1699

Abstract: This paper describes sources of red and green light with an S-shaped current-voltage curve based on epitaxial gallium phosphide PNPN structures -- electroluminescent dynistors. The electrical and electroluminescent characteristics and parameters of these devices are presented, and it is shown that the properties of electroluminescent gallium phosphide dynistors are similar to those of dynistors based on other materials.

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USSR

UDC 621.382.2

DOMANEVSKIY, D.S., LIBOV, L.D., LITVINOV, V.L., LOMAKO, Y.M., NOVOSELOV, A.M.,  
RAVICH, V.N., TRACHEV, V.D., UKHIN, M.A.

"Effect Of Radiation On Gallium Phosphide P-N Junctions"

V sb. Radiats. fiz. nemet. kristallov. T.3. Ch.2. (Radiation Physics Of Non-metallic Crystals. Vol. 3, Part 2--Collection Of Works), Kiev, "Nauk.dumka," 1971, pp 50-53 (from RZh--Elektronika i yeye primeneniye, No 12, Dec 1971, Abstract No 12B534)

Translation: The p-n junctions were obtained by the method of liquid epitaxy with n-GaP. The epitaxial p-region was doped with  $C_2$  and Zn. Irradiation was done with reactor neutrons and also electrons with 28 Mev energy at temperatures above  $50^{\circ}C$ . The current-voltage characteristics and the electroluminescent spectra were investigated at room and nitrogen temperatures. After irradiation, the forward branch of the current-voltage characteristics is shifted to the region of smaller voltages (the lifetime of minority carriers is decreased) and subsequently with an increase of the flux -- to the side of the larger voltages (increase of the resistivity of the initial material). After irradiation the intensity of all the spectral bands of electroluminescence are decreased. The

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